Best Pitch

DIGITAL SHAPER CERTIFICATE

Aditya Murali
Deep Learning-Techie | Aachen

>. TechLabs

2023

Aditya Murali completed the TechLabs Academy Track **Deep Learning** successfully with the final project **Human Activity Recognition using CNN-LSTM Modelling.**

www.techlabs.org

Winner of the Google.org Impact Challenge Germany 2018

Track: Deep Learning

Track-Description:

In the Deep Learning track of the Digital Shaper program offered by TechLabs, participants learnt state-of-the-art concepts of Deep Learning. The participant started with a machine learning recap, followed by an introduction to deep learning, along with a guide how to practically set up a development environment with FastAI. Afterwards, the participant learnt theory of neural networks and deep learning, including gradient descent and backpropagation. Furthermore, applications and architectures of neural networks for a variety of topics were introduced, including image processing and computer vision, natural language processing and time series analysis. Completing the development environment were topics regarding how models can be served and how machine learning projects are best structured. The program required a work effort of 3-5 hours per week between April 2023 and October 2023 in order to fulfill both the educational and project part of our program.

Project: Human Activity Recognition using CNN-LSTM Modelling

Project-Description:

Human Activity Recognition (HAR) is a vital field of study aimed at developing techniques for the identification and categorization of human physical activities through the utilization of machine learning models. These models leverage data collected by IMU devices such as smartwatches and smartphones equipped with sensors, including accelerometers, gyroscopes, and magnetometers. The data generated by these sensors is collected over time, transforming the problem into a time series classification (TSC). In this project, we present our research on HAR, focusing on the implementation of a hybrid deep learning model combining Long Short-Term Memory (LSTM) networks and Convolutional Neural Networks (CNN).